

AVIATION WEEK

JAN. 12, 1948

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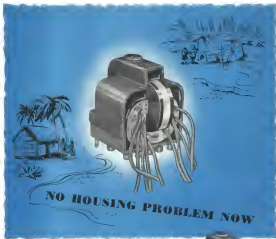
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Robert H. Wood
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EXIT LANDES—The little man with the shadowed eyes and the tumbled hair walked out of his fifth floor Commerce Building office for the last time on New Year's Eve, ending what has been described as the one man reign over CAB.

Kern station observers are the departure of James McCauley Landes as probably handling something far more important than a change in membership of the Civil Aeronautics Board.

Absence of Landes' forceful, positive personality in itself will mean a change in the Board's outlook and methods. But it is likely that developments brewing will go far beyond that.

The situation regarding safety may furnish a clue. Once before when the old Air Safety Board had an irreplaceable, consistent two-to-one split, official discussion and a pull over the industry and resulted in—at least on the surface—a reorganizing of the government's aviation structure. It could happen again.

The breach between Landes and some of the major airlines was deep and wide, could never be mended. Main reason was Landes' view on safety which was locked with conservatism. Often he has indicated privately that improvements in the airline safety record could come only through measures—such as the temperature accountability proposal—which would cost the service payback.

That's a dollar-and-cents matter on which the firm only hard-headed loss would be realized.

CHANGE IN FIVE DAYS—Some of the major airlines backed Landes' appointment, are happy he was dropped. But observers discount the widely publicized reports of the dramatic effect of airline efforts against the former CAB chairman. Other reasons for Landes' failure to keep his job seem more pertinent.

Esset nature of these reasons is a matter even to Landes. He wanted resignation. He told associates over five days before the President's announcement that he had been assured he could remain on the job.

Landes are convinced the basic announcement that Landes would not be reappointed was in such a surprise to the chairman as it was to the public. Apparently, the President did not make his decision known in advance to Landes, nor did he consult him. Landes is hurt by the lack of a "Dear Jim" thank you note. Even so, friends of the chairman think Landes cured at least that.

INTER-OFFICE FEELING—By nature Landes is a one-man show. He believes in direct action, his little tactic for administrative routine or the execution of official procedure.

He resisted the reflagging opposition of the State Department by his one-man negotiations with Brazil and Britain, about which State learned later, only after

the time when the deals had been successfully concluded.

While he took CAA's side on the landing slot matter, he looked the agency, on safety aspects, more than once gave private gatherings the impression that he intended as one was or another to keep closer tabs on CAA.

The arrested CAA feeling and—more significant—the interest of CAA's Cabinet representative, Secretary of Commerce W. Averell Harriman.

Landes' positive statement began with characteristic bluntness. "I have only this comment to make about my differences with other members of the government," Langston aviation observes set these words in strengthening this conviction that Landes' out calculated nothing but set the stage for something. Landes' own sentence also is a hint.

MATTER OF INDEPENDENCE—"I have a firm conviction," the statement reads, "that the development of the air potential of this country requires an independent Civil Aeronautics Board free of domination by other transportation and financial interests and styled by an monopoly."

Landes many times has expressed his conviction of the importance of an independent CAB. In chats with confident friends he stressed he has not indicated any knowledge that CAA's independent existence is imperiled.

But there are grounds for thinking that he went too far for the agency's future independence.

Landes' reluctance, it seems certain, was directed at Secretary Harriman. There are reports stronger than the recent stage that Harriman faces an overall business agency into which would be merged administration and regulation of all transportation media.

TRUMAN BACKGROUND—It is pointed out that government aviation difficulties are not new to President Truman. He participated actively in forming the Civil Aeronautics Act. In the Senate he had a regime next to the Air Safety Board feeling and the subsequent Executive Order changing the framework of the aviation agency.

Harriman has powerful influence in business (and this in a presidential election year) and at the White House. If he has succeeded in existing the President's and for his overall transportation agency, Truman has a guarantee, and a first-hand knowledge of how to proceed. Although he has not expressed it even privately, Landes must have reason to feel that Harriman is winning.

Some major airlines did not want Landes reappointed, Board members, State Department, Commerce are just as happy he has been dropped. But shrewd observers are convinced that those could be circumstances or reasons—not reasons. They feel that the real story was CAB independence and that that story was being settled—in Harriman's favor.



All the outstanding advantages of VHF communications and navigation are combined in two new systems designed and manufactured by Aircraft Radio Corporation.

THE TYPE 15A VHF OMNI-DIRECTIONAL RANGE RECEIVING SYSTEM provides an unlimited number of channels from the new VHF Omni-Directional Range, as well as operation on VHF Hierarchy Localizer and Visual-Aural Airways Range frequencies. This system is included on these ranges. The available A.R.C. Receiver makes it possible to receive VHF communications on any frequency without a radio in flight—no need for several receivers to cover the entire VHF band.

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The dependability and performance of these VHF communications and navigation systems greatly increased safety in flight, more efficient aircraft operations. Specify A.R.C. for your next installation.



NEWS DIGEST

DOMESTIC

Boeing Airplane Co. has merged its wholly owned subsidiary Boeing Aircraft Co. into the parent organization to simplify its operating structure. William M. Allen, president, and officers remain virtually unchanged, having been substantially the same in both companies.

Dr. Craig T. Wells, University of California (L.A.) physiologist, has demonstrated humans can survive 144 min. at 210 degrees (F) or 35 degrees above boiling point. Tests indicate human body can actually get phone may be less serious problem than hemothors be saved.

For Peace personnel now number \$15,000 and estimate a \$41,000 total by June 30. Personnel total stood at \$5,000 in June, 1947.

FINANCIAL

Navy Bureau of Aeronautics has taken possession of the \$48,000,000 aircraft engine factory at Kansas City, Mo., operated during the war by Pratt & Whitney division, United Aircraft Corp.

Northwest Airlines declared a dividend of 24¢ cents a share on 390,000 shares of 4.6 percent preference stock. The dividend, which totals \$181,135, is payable Feb. 5 to holders of record Jan. 16.

Forchard Aircraft, Ltd., Langford, Quebec, is being voluntarily liquidated, according to Toronto sources. Several offers have already been received for the plant and equipment. Company designed and built the heavy single-engine fighter, the status of which is under negotiation.

FOREIGN

Danish Airlines has inaugurated a Marseille - Geneva - Frankfurt - Copenhagen service on a new weekly basis. The new service uses Douglas DC-3 transport. Consulars are available at Geneva with Danish lines serving Rome, Athens, Istanbul, and Ankara and at Frankfurt with the Danish line to Zurich.

Leonardo Airport, composed of three former military airfields, 30 miles from Milan, Italy, has been opened to overnight traffic. Broadly bright service is now in operation at Turin Airport, one of the three fields, which contains 2,470 acres and a new landing strip of thick gravel 1,230 ft. long. About 25 daily aircraft movements can be handled with present facilities at the field.

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Jan. 12, 1948

President's Rejection of Landis Brings Widespread Criticism

CAB chairman issues statement as he leaves to become associate of Joseph P. Kennedy; Commerce and State Department hands seen in White House action.

By CHARLES L. ADAMS

Reason for President Truman's cold refusal to support James M. Landis as chairman of the Civil Aeronautics Board continued to get top industry attention last week as possible nominees for the two board vacancies advanced into and out of the limelight in a paper-factum.

Rejection of Landis, who was appointed to CAB by President Truman in June, 1946, to fill the unexpired term of L. Welch Page, brought a rush of protest. The criticism, while continuing on the President's action, also tended to reflect an aversion, later abandoned, to push Stanton Goff, investment banker and ambassador to Poland, as Landis' successor.

■ **No Thanks**—The White House administration was in the form of a bare statement that Landis would not be reappointed. Caution to caution, there was no expression of thanks for services rendered.

The major aversion, with the exception of TWA, had been fighting Landis' reappointment for months (Aeronautics News, Jan. 17). The chairman also had served as chairman of the Commerce and State Departments.

■ **Job Unfilled**—Landis badly needed reappointment. He felt that he should not leave unfinished his work on airline safety, airframe control and traffic. The President's decision, however, was a real case and the flight forward situation.

At noon, Landis had 72-hour notice of the President's intention. When the CAB chairman visited the White House earlier in December, the President indicated he would Landis to re-nominate with the Board. Minority Leader Sam Rayburn also visited President Truman in December and reported back to Landis that he would be nominated for another term.

■ **Strong Opponents**—Various opposition to Landis was based on a variety of factors. The Chairman's safety ideas, if

adopted, will prove costly. His proposed retroactive rule on which the current policy need and a strictly control of airline management's financial planning in the positive period.

Further, he was inclined to open the cargo field to new carriers and the freight haulers. His attitude on temporary suspension of certificated level brought along opposition from the Air Transport Association.

Press Protests

Three of the main Washington, D.C., newspapers criticized reappointment President Truman's decision not to support James M. Landis as CAB chairman.

■ **The Washington Star** under the heading "The Landis Ouster" and "Presumably the President decided not to reappoint James M. Landis as chairman of the Civil Aeronautics Board because of disaffection with the manner in which Mr. Landis has not his responsibilities in that post. If this is so, however, the manner in which Mr. Truman has disagreed with the services of Mr. Landis is subject to criticism on two counts."

"The first is the President's failure to set forth any reason for the Landis dismissal. Here is a man who has been on the firing line as a champion of the public interest in the development of civil aviation. He has fearlessly crossed swords with powerful interests in the aviation industry. One thing is clear: This studied silence on the President's part is going to lead the suspicion that the official derision of Mr. Landis has been brought about by pressure from interests which are not necessarily identical with good sense."

■ **Score PRA**—The *American Airways* opposed Landis on two grounds. The chairman had given damaging testimony against the Community Company bill before Congress. Landis also scored PRA for spending large sums to line up public opinion behind its bid for domestic routes.

Secretary of Commerce Hiram Bland and at least one of his top aides reportedly were backing PRA in several Landis. Commerce officials have been sensitive to Landis' blunt criticism of the Civil Aeronautics Administration—Commerce Dept agency. Landis also fought for CAB independence, while Hiram has expressed a desire to establish more responsibility for civil aviation policy and to bring the Board under the Commerce Department's wing.

■ **Statement**—*House-News* said: "The statement of Landis' attitude on temporary suspension of certificated level brought along opposition from the Air Transport Association."

Landis Ouster

the public interest and which may very well be hostile to it.

"The second basis for criticism of Mr. Truman has to do with the manner in which the ouster was applied to Mr. Landis. It is surprising to put it mildly, that the President should see fit to ouster this man from public service without a word of explanation, or appreciation for the things he has done and has tried to do."

■ **The Washington Post**, under the heading "Presidential Legitimacy," said: "The question arises in which President Truman announced the removal of James M. Landis in their view of the Civil Aeronautics Board is an object lesson in how not to attract and keep good men in the government."

■ **The Washington News**, under the heading "Why We Landis Board," said: "We don't know why President Truman fired James M. Landis as head of the Civil Aeronautics Board. But with the given case so gently needing good men, and finding them so hard to get, we think Mr. Truman owes the public as well as his own administration of why he has let a good man go."

top to London in obtaining satisfaction of Great Britain's adherence to the Bermuda principles.

In its statement on leaving the CAB chairman, Landis declared: "I have said this statement to make about my differences with other members of the government. I have a firm conviction that the development of this country's air potential requires an independent CAB, free of domination by other transportation and financial interests and shield by no monopoly."

■ **Paralel**—*Enterprise*—*Airline* will not give in a private enterprise unless future of competition are given full play and sales opportunities are created for the industry of new ones, like the retaining CAB, with new ideas. Airline needs even more a sincere effort to solve the problem of an airline, whatever its cost, if it helps to survive in a passenger-carrying business."

Landis stated that after a reaction he would become associated with Joseph P. Kennedy, Senator, former ambassador to Great Britain, and Landis' predecessor as chairman of the Securities and Exchange Commission. In his connection with Kennedy, Landis had been making his last advance into private business.

■ **Three Members Left**—CAB was left with three members as a result of Landis' departure. President Truman has appointed Oswald Ryan, a Republican in vice chairman. Reports of member Charles B. Ransdell's retirement have been confirmed, but only this month he was expected to resign with the Board "for the time being."

Member John Lee has been interested in joining the Democratic nomination for Senator from Oklahoma, a post he held before being appointed CAB. But with two popular votes left at stake in the race, Lee has not yet announced his candidacy.



James M. Landis, former Civil Aeronautics Board chairman, was "playing chess" with the government, says Joseph P. Kennedy, following a short vacation. (See the *Airline Week*, page 7.)



BRITAIN'S JET 'FLYING WING' FLIES

Britain's contribution to flying wing aircraft, the Avrocar, flew without a pilot, at a speed of 1,500 mph at 30,000 ft. The aircraft, which is 150 ft long, 15 ft high, and 15 ft wide, has a top speed of 1,500 mph, a range of 1,500 miles, and a climb rate of 15,000 ft per min.

Canadair DC-4M2 Equals "Spees" in Tests

Canadair DC-4M2 has completed all tests required for approval of the plane by the Canadian Department of Transport and has equalled or exceeded its original specifications. The four-engine (Rolls-Royce Merlin 628 of 1,735 hp for takeoff) transport has demonstrated a top speed of 345 mph at 68,000 ft, gross weight and 375 mph at 30,000 ft, gross weight.

The 40-passenger transport has a maximum range of 4,850 miles at 10,000 ft, range of 2,855 miles at 10,000 ft with maximum payload of 14,754 lb, maximum range at 11,000 ft of 7,715 miles and range of 21,000 ft with maximum payload 2,600 miles. CAB take-off running length is 5,000 ft and landing runway length required is 4,900 ft. Runway climb at 30,000 ft gross weight at sea level is 900 ft per min and at 22,000 ft is 640 ft per min. Service ceiling at 30,000 ft gross weight is 35,000 ft.

The DC-4M2 is in country production at the Canadian plant near Montreal with five already in service with Trans-Canada Air Lines. Production is planned to reach a maximum output of eight transports per month this spring.

NATS Makes New

Safety Record in 1947

A full year's flying without a passenger fatality was completed on Jan. 1 by the Naval Air Transport Service commanded by Rear Admiral John W. Rowley, Jr. The company with NATS 1948 safety record of 1.8 fatalities per 100 military passenger miles. Domestic civil airlines had a safety record of 1.6 fatalities per 100 passenger miles in

1946 and an estimated 5.2 for 1947. One NATS crew member was killed in 1947.

NATS, which is engaged in a top priority battle with the Air Force Air Transport Command for survival under the Armed Services Unification Act, set up a 98 percent record on scheduled plane miles completed and flew all but 5 percent of its regularly scheduled flights. Approximately 11 percent of NATS flights were delayed for an average of 2.6 hours.

With a fleet of 116 airplanes (including DC-3, DC-4 and Martin Mars types), NATS flew 497,883.75 passenger miles and 44,992.00 tons miles of mail and cargo. Total of 130,776 passengers were carried including 8,274 hospital patients. NATS' total losses averaged \$1 percent and aircraft availability ran 8.8 hours per day for DC-4, 24 for DC-3 and 3.5 for Martin Mars flying boats.

Transcon Contracts

Transcon Air Lines, Oakland, Calif., has secured a contract with Trans-Canada Airways, parent contractor with the Canadian government, for main flight of emergency from Britain to Canada, and expects to fly approximately 8,000 Canadian passengers in the first half of 1948. Transcon reports it has already flown more than 6,000 persons across in the past six months, under a similar contract. Approximately 24 flights a month will be made during the winter season with frequency increased to 40 to 50 flights every four weeks, therefore. The contract is described as setting a new record for mass movement of civilians by air. Transcon also has a contract with the U. S. Army Engineers for trans-Pacific movement of personnel and workers in construction jobs at bases including Guam and Okinawa.

PRODUCTION PROGRESS REPORT—1947

All Manufacturers

Month	J.-Dec.	J.-Dec.	Transports	Military	Total	Value*
January	969	1,236	11	99	2,115	\$13,213,420
February	793	1,208	11	89	2,001	\$8,137,538
March	789	875	28	137	1,832	\$5,361,521
April	1,241	1,041	12	181	2,465	\$9,388,438
May	842	771	28	1	1,642	\$2,770,714
June	730	571	11	129	1,441	\$4,611,171
July	1,075	884	12	304	2,275	\$4,877,438
August	618	670	23	140	1,451	\$3,340,791
September	787	871	50	173	1,981	\$3,340,134
October	590	864	48	239	1,741	\$7,331,460
Total	6,798	7,411	286	1,065	16,060	\$68,179,572

* Includes aircraft, parts, accessories, all other products and all payments to military contractors during the period. Value based on "Fiscal Year" of the Bureau of the Census.

Personal Aircraft Companies Reporting to Aircraft Industries Association

Company	Shipments			Value		
	Jan.-Dec.	Jan.	Dec.	Jan.-Dec.	Jan.	Dec.
Aeromarine	1,479	170	135	\$1,877,000	\$348,000	\$169,000
All-American	1	1	1	5,000	5,000	5,000
Aviation	1,141	100	142	7,403,000	150,000	717,000
Boeing	208	7	8	1,040,000	15,000	40,000
Cessna	2,114	41	56	1,494,000	110,000	275,000
Engineering and Research	771	5	75	1,004,000	11,000	91,000
Ford	36	1	1	2,000	2,000	2,000
Louisiana	1,294	130	108	7,284,000	214,000	215,000
North American	811	1	11	1,057,000	10,000	25,000
Pitts	3	1	1	1,000	1,000	1,000
Reynolds	2,117	15	15	1,102,000	79,000	30,000
Textron	2,116	159	105	10,511,000	343,000	911,000
Tukeycraft	109	11	11	1,000,000	11,000	39,000
Tukey Engineering	109	24	31	778,000	41,000	108,000
Total	12,499	704	877	\$11,088,000	\$1,015,000	\$3,177,000

Notes: Aircraft figures do not include Jan., Feb. and March. Aeromarine figures include shipment of 1 D-10 in the May which was 115 in Jan. and total 288 for the year. Truck figures are for 10 months only.

Boeing Re-Assigns XB-47 Project Staff

With one XB-47 in the flight test stage and another ready to be rolled out of the factory, Boeing Aircraft Co. has transferred many of its designers on the XB-47 project to other work.

Of 275 engineering personnel employed on the jet bomber at the peak of the project, only 90 remain, with about half of the remainder transferred to new projects.

Ray V. Gifford, equipment group engineer on the XB-47, a project engineer for the YB-50-C, with C. H. Strassburg and H. J. Bennett also assigned to the YB-50-C. H. R. Brown, C. H. Brown, Henry Russell and Van Beek, all XB-47 engineers, are assigned as group engineers on the XB-51. H. J. Wilson, D. H. Govey, and J. W. Truitt, formerly assistant engineers on XB-47 work, are group engineers on the YB-50-C.

D. S. Lewis, another XB-47 project engineer, is working on a restricted project in preliminary design.

The new "B" is an advanced design of the present heavy bomber, with more powerful engines, while the XB-52 is believed possible to incorporate a new type power plant for Boeing planes in other personnel action.

General Electric Co. purchased Henry W. Cohen to vice president and general manager of the Aircraft Department, largest of the seven G-E engineering departments. Cohen succeeds Ray C. Miller who retired Dec. 31, after more than 47 years service. John D. Lockhart has been elected treasurer of the company, succeeding Jesse W. Lewis who retired Dec. 31, after more than 37 years service.

Joseph F. Eickel was promoted to manager of the Lynn River Works. Eickel has been assistant manager of the River Works since April, 1945, and now succeeds George M. Stewart who is transferred Dec. 31 after 46 years at work. Lockhead Aircraft Service, Inc., appointed Luke Harris vice president and Rockwell base manager. Harris took over his new duties Jan. 1, succeeding H. W. Allen, former Rockwell base manager, who has resigned to devote full time to his own business. Harris returns his position on the board of directors.

Benjamin Aviation Corp., Pacific Division, appointed V. J. Moore as eastern sales-engineering representative with headquarters in New York. Moore has been a sales engineer with Bendis-Pacific in the North Hollywood plant for the past two years and prior to that spent three years in the engineering department.

Adel Precision Products Corp. appointed D. E. Goshke, secretary and treasurer. Goshke was for a number of years with United States Steel Corp. as Pittsburgh as night supervisor of the plant's Delaware operations and as Dallas as comptroller of Oil Well Supply Co. He also worked as manager of Learmonth Aircraft Corp. at Dallas and as comptroller of Nacell Drug Co. in Los Angeles.

Harbison-Nicholson, Inc., Manchester, N. H., appointed F. L. Edwards assistant manager of its central district office in Pittsburgh. Edwards, who has been manager of the products division of Manufacturing's western district office, started with the firm 28 years ago. He will take over his new duties Jan. 1.

Monsanto Chemical Co. appointed Tom K. Smith, Jr., assistant branch manager of its phosphate division. Smith will be in charge of the Cincinnati branch of the division's Detroit office. He will supervise sales of all phosphate division products in his territory.

Titrefix, Inc., named Robert E. Carls as manager of a new department for development and production of film control equipment. Prior to joining Titrefix, Carls was manager of the security division of the Woburn Co. previously he was with the Spangco Thermocut Co. for 14 years. He has served as a consultant to the S.A.E. Committee on propelling mechanisms for the S.A.E. (Aeronautical Standards) on smoke and fire detecting instruments.

John A. Bachling's Sons Co. appointed L. H. Van Dine, Jr., Detroit, Mich., a mechanical engineer for the firm. Van Dine, who retired Dec. 29, Van Dine, a former lieutenant in the USNR, is a graduate of DeWitt College and the Univ. School of Business Administration. He has been associated with the company since 1945.

John-Manville Corp. appointed J. L. Miller, plant manager at the Zeeland, Pa., plant. Miller has been production superintendent at this plant since 1941. He succeeds S. K. Cline, who resigned. Miller was formerly in the John-Manville laboratories for several years where he had specialized in research and development activities connected with resins and molding compounds.

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selector switch, easily read, illuminated tuning-dial and dimming-control placed for utmost convenience. Now available, the special version shown is designed for light aircraft. Standard versions also available for both single and dual installations in all aircraft. For complete details write LEAR, Incorporated, Grand Rapids 2, Michigan.



AVIATION WEEK January 12, 1948

Flight Record Aids Safety, Efficiency

GE device using new pick-up and inscribing system promises valuable results for several operational purposes.

By CLARE L. BEATTIE and PHILIP J. KASS
(General Electric Co.)

The Civil Aeronautics Board has adopted a regulation which will require all airlines to install 2-channel flight recorders in every airplane used on scheduled flights in the continental United States. This action is further evidence of the effort which is being made to improve the safety of air transport and to improve the efficiency of airline operations.

Every aircraft accident, if its precise cause were known, might disclose a new means of improving the safety of air transport. Accident analysis is therefore a powerful instrument for improving the safety of air travel. The problem of decreasing the cause of an air accident from a few hundred pieces of aircraft is a difficult one at best.

There are some in air transport who feel that they can improve the safety and efficiency of their operations by means of an "airborne accounting system" or by "after-acting," as it is sometimes called. An airline, then, before, during, and after a flight, wants to know what takes place during flight. Was the pilot forced to deviate from his assigned altitude or his flight plan? Were the power plants efficiently operated? Did the automatic flight equipment operate satisfactorily? Was the airplane subjected to extreme turbulence and stresses? Answers to these and other questions are available in airlines that will make frequent analyses of their flight records.

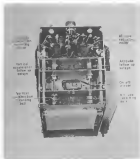
As with any accounting system, analysis of flight records does not produce income directly. It does, however, provide facts and figures on data questions which make possible more effective management and more efficient operations.

For this reason, some airlines are looking to the use of flight recorders to provide daily operational data on their flights in addition to the use of the flight record in the event of an accident. A few of these airlines are thinking of installing large volume recorders to obtain a continuous record of speed, compass heading, compass pressure, engine rpm, or other data in addition to the altitude and vertical acceleration data required by the CAB.

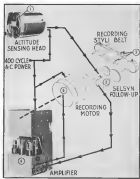
Airline Requirements—The widespread use of recording devices in industry and their use in boats and locomotives plus experience from several airlines led General Electric to embark on a flight recorder development program as late 1945. At this time preliminary discussions were held with several airlines to determine their requirements. These discussions indicated that it would be difficult to obtain agreement among the airlines as to the particular functions which should be recorded. If a special, high-grade recorder had to be designed for each airline, its cost would be prohibitive.

This situation suggested the design of a remote type of flight recorder and the use of a small electrical postural transducer which could be installed on various standard aircraft instruments. This would provide one standard recorder design which could meet the requirements of almost any airline.

Based on earlier flight recorder experience, the airlines



Next, one of the prototype GE remote type flight recorders with cover removed. Below, a schematic diagram of the recorder illustrating principles of operation. Like other devices of this nature, the recorder does not act on the tail of the airplane, deemed to be the place most likely to suffer severe damage in a crash. But GE's most notable improvement are the small stress pick-off attached to the face of the instrument, and its stress method of recording which gives a permanent record.





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contacted prior to the beginning of design work, indicated that a light in order should meet the following basic requirements:

- (1) Eliminate the use of pie and risk welding because of the adverse effect on the quality of the record which results from erratic vibration, excessive heat and wide variations in ambient temperatures.
- (2) Provide a greatly expanded scale so that the recorded data could be easily and accurately analyzed.
- (3) Provide a readable design which could be easily converted to (a) new or different functions as airline needs changed.

The remote light recorder makes it possible to record the desired time line at the most accurate or convenient location in the airplane while enabling the recording unit to be installed in the tail of the airplane. When the recorder is so located, greater protection of the light record is possible in the event of an accident. Using the remote principle, it is possible to mount vertical recorder units at the airplane's center of gravity directly and suspended from existing pilot static lines near the pilot's altimeter and speed indicator, oxygen landing as an area free of magnetic disturbance or to obtain a stabilized heading signal directly from the auto pilot.

The importance of remote recording locations is emphasized by N.A.C.A. data. Their tests indicate that average errors of 25 percent during flight and 100 percent or more during landing may be expected in the vertical acceleration records if vertical acceleration is measured in the tail instead of at the airplane's center of gravity. The remote recorder design not only eliminates these errors, but permits the acceleration-measuring device to be rigidly secured to the airplane while allowing the recording unit to be shock mounted. This eliminates another source of spurious acceleration readings.

► **Miniature.** Section II standard calls exactly suitable aircraft instruments could be used to increase the desired intelligence, a proven source of signal could be available at less cost. With this in mind, the crux of the problem of developing a remote light recorder was to design a small electrical position transmitter which could be attached to the standard aircraft instrument to transmit electrically the reading of the instrument to the recording unit. The position transmitter, as shown, led to be such a design that it would expose an exceptionally light load on a sensitive, low torque instrument such as a bearing altimeter, and not cause a serious error in the instrument's reading.

To meet this requirement, a small ribbon pick-off, approximately one inch in diameter, was used to the reading of

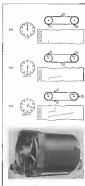


Chart at top discloses how the light in order motor is moved as the airplane turns, as explained in the accompanying text. Below is the ribbon pick-off attached to an altimeter. It is mounted on a plastic cover replacing the usual glass window of the instrument, and the ribbon runs a couple of inches to the instrument's position.

in diameter, was developed. This tiny ribbon is functionally similar to its more rugged brethren which have found frequent application in servo systems for many years. It differs in that both its primary and secondary windings are stationary, therefore, no brushes or slip rings are required. The only moving part is a tiny shaft with two metal vane which is used to change the distribution of magnetic flux in the secondary winding.

The ribbon transmitter is mounted on a plastic cover glass which is substituted for the existing cover glass on the standard aircraft instrument of the power-indicating type. The motor of the light recorder is coupled to the instrument power by means of a small light which provides the instrument pointer.

The static bearing torque (with no vibration) required by the ribbon is approximately 0.001 ounce-inches. The effect of the load on a bearing-mounted alternative bearing, for example, is so small that it will introduce no more than 10 feet error into the reading of

the instrument at 20,000 feet altitude. ► **Principle of Operation.**—The operation of the light recorder is similar to the conventional follow-up or servo system. The primary winding of the solenoid transducer (1) is excited from a source of 60 cycle a.c. power. The signal from the secondary winding of the solenoid transducer is applied to a similar second winding in the ribbon follow-up (2) located in the recording unit. This solenoid follow-up has its rotor directly coupled to the recording stylus belt (3) which is in turn driven by the recording motor (5). If a difference exists between the instrument reading and the value being recorded, the ribbon follow-up transducer is a current signal to a thermocouple vacuum tube amplifier (4). The amplified signal is then applied to one winding of a two-phase transformer a.c. recording motor (5) whose other winding is constantly excited from the 60 cycle a.c. supply. This recording motor in turn drives the recording stylus into correspondence with the reading of the transmitting instrument and relay.

The amplifier is of conventional design with a 125Z5, twin triode, and an 800V5 pentode and a 6X5 used as a power tube and rectifier voltage doubler, respectively. The tube heaters are operated in series directly across the airplane's 28 volt d.c. supply thereby eliminating the weight of transformer.

There is considerable variation in the characteristics of the functions which may be recorded. For example, altitude may vary through 50 percent of its range during a flight, but with certain functions the variation is less. On the other hand, vertical acceleration will normally vary through only 10 percent of its total range, but the frequency of the phenomenon may be several cycles per second. The resulting variations and "servo" problems, however, all channels are selected in design and response. The recorder will accurately follow a constant vertical acceleration up to about 10 g's in plus or minus 0.5 g's at a frequency of 2 cycles per sec and with negligible overshoot. Higher response up to 9 g's may be obtained at a slight sacrifice in accuracy.

► **Facts of Its Recording.**—Experience has shown that ink and amplifier recording don't "mix." Under vibration, the ink runs and blots, at low frequencies the ink blurs, under most conditions dust and dirt clog the pen. The frequent filling and clearing of the recording pen is a time-consuming nuisance.

A new pressure sensitive paper, developed for the General Electric Company, characterizes the inkless recording characteristics. It consists of a black paper base which is coated with a thin layer of white lacquer. A stylus riding on the paper cuts through the white

ensuring thereby exposing the black box. This creates a full-line trace which is approximately 0.015 inch wide. The stylus makes the trace without contact by leaving particles, chalking of the recording stylus is therefore unnecessary.

The quality of the trace is not affected by manual interruptions experienced in aircraft operations. The paper may be subdivided in six inch widths and after being drawn, there is no effect of its vibration. The paper may be pre-subdivided after recording to prevent swabbing during analysis.

In order to provide a greatly expanded recording scale the increased accuracy and readability, a continuous belt recording system has been offered. By so doing, it is possible to effect an altitude scale which is expanded 20 to 40 times that which is obtained with conventional recording systems. This is done without increasing the width of the chart paper.

The recorder is so constructed that for each complete revolution of the mechanical power (and the stylus from motor motor), the belt speed which will make one complete revolution. As it revolves it drives the continuous spiral belt which records three inch spiral style, equally spaced, along the length of the belt. In the accompanying illustration, the top figure represents the airplane on the ground (at

sea level) and the altimeter is reading zero altitude. The No. 1 stylus is positioned at the left-hand side of the chart paper. As the airplane ascends, paper passes under the recording belt and stylus, the No. 1 stylus will make the zero altitude trace down.

If the airplane takes off and climbs to 100 ft. altitude, the long altimeter pointer will make one full revolution, as will the arm of the altimeter transducer attached to it. The recorder sprocket wheel will follow this motion through a corresponding one-half revolution driving the continuous spiral belt and carrying stylus No. 1 half way across the chart paper as shown. As the paper is driven (by the chart paper drive motor) under the recording belt, a trace will be formed.

If the airplane continues to climb to 1,000 ft., the left sprocket wheel will have made one complete revolution from its normal starting point by the time the airplane reaches 1,000 ft. altitude. Stylus No. 1 will have moved across to the right-hand side of the chart paper. As the altitude of the airplane increases above 1,000 ft., stylus No. 1 will rise up on the right-hand sprocket roller, leaving the chart paper. At the same moment, stylus No. 2 will swing down into position on the left-hand side of the paper. Stylus No. 2 will then continue the altitude trace. If the airplane climbs to 1,100 ft. and then enters its sideways movement and the trace shown in the lower figure will result. If the altitude had continued to increase, one additional sweep would be recorded for every additional thousand feet of airplane altitude. The decreasing air altitude, the slope of the altitude trace will be reversed.

Thus, the use of the continuous belt recording system provides a 7 inch scale for every thousand feet of altitude. Using this greatly expanded scale, a deviation of 10 ft. in airplane altitude is clearly discernable. Signals under of great accuracy and readability can be obtained by using a sensitive record indicator, sensitive pressure gauge or other sensitive type instrument for a sensing head. The continuous belt recording system is especially well adapted to recording a constantly rotating motion, such as the constant beating of the airplane. The conventional recording pen on the end of an arm would have difficulty recording the compass heading of an airplane circling a field through more than 360 degrees.

• **Chart Paper Drive.** The chart paper is driven by means of a rubber friction roller which exerts its driving force across the full width of the chart paper. The roller is powered by a small six channel motor which receives its drive or power from a small scale of 100 ft. and the altimeter is reading zero altitude. The No. 1 stylus is positioned at the left-hand side of the chart paper. As the airplane ascends, paper passes under the recording belt and stylus, the No. 1 stylus will make the zero altitude trace down.

beat. This arrangement provides a trace on accuracy of approximately 5 percent. For a given trace scale no matter, it will be possible to compound the measurement may be added and driven by the chart drive motor. This compound will, at the same intervals, close a set of electrical contacts which will form a trace one of the "on-off" paper" in the recorder. When energized, the on-off paper makes a small gap on the edge of the chart paper. The accumulated accuracy of these tracing gaps will not exceed 0.5 percent. A chart speed of 5 in. per hour is provided. By changing one gear, this speed may be increased to 6 in. per hour. The latter speed may be desirable for rapidly climbing powered aircraft. Higher chart speeds for experimental applications are available in modification of the base design. A 200-hour chart supply of paper is provided at the 5-inch per hour speed.

The chart carriage itself is so designed that it may be quickly removed from the recording unit for loading the chart paper. Extra chart carriage may be purchased.

• **Maintenance.** The trouble flight is easier for much in maintenance it than the conventional and more standard. By utilizing standard, already proven aircraft instruments as sensing heads, negligible trouble may be anticipated in the sensing heads. Because it is possible to use instruments from a manufacturer of the individual practitioner's own choice, maintenance and overhaul procedures for the sensing heads are already known by service personnel; spare parts are already in stock.

By making such elements of the flight recorder standard, reduction of maintenance and service personnel is simplified. When they are familiar with one channel, they are competent to service any channel of a 10-channel flight recorder. This also saves spare parts procurement.

The use of rollers recording eliminates the frequent filing and cleaning of the recording system without introducing wear, vibration, or other problems. Because of its simple, yet sturdy, construction the continuous belt recording system should require little attention.

The simple type flight recorder offers not only high accuracy, readability and ease of maintenance, but extreme flexibility and versatility as well. One standard recorder, for example, can be permanently installed in an aircraft to record operational data such as altitude, control movements, engine and oil pressure. Another standard recorder can be used for occasional spot checks on such functions as engine rpm, and manifold pressure. Thus, procurement of one standard recorder can serve the interests of many groups.

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NORTHROP STUDGES GLIDER

Northrop Experimental Institute (Dear Reader, Civil) students are often assigned to a captured Northrop Model VI glider, so that they might study the aerodynamic characteristics of the fabric airship. The craft was captured by the Army in Germany in 1918 and is now located in the Smithsonian Institution. It was used in the late 1910s by the Air Force at Wright Field.



First, Fiberglas, impregnated with resin, is wrapped around a plaster mold or manded shape or less than thick, like wrapping bandage. The manded is first coated with a red-berry malle through one layer of plastic so that workers can visually check the even platters of the wrapping and avoid thin spots in the finished duct.



Unit is then covered in a plastic bag, or a grouped set of the bag in this article is present both the wet Fiberglas tightly to the manded. The entire assembly is then placed in a baking oven for one week. During a time, a temperature between 200 and 250 deg. After cooling the plaster manded is stripped away. Workers are shown preparing mold prior to baking.



Finishing of the baked duct is carried on after the removal of the oven. The different components of a system are usually prepared to insure correct fit and performance when installed. Units are usually manded and cut to size. Note that not all of the manded has been removed from the pipe at the longitudinal. Workers are fitting these parts to assure alignment.

Plastic Ducts to Assist Designers

Complicated ducting problems in the Statorator have been solved by the Boeing Aircraft Co. through the manufacture and use of perforated plastic ducts. These ducts are fabricated from Fiberglas impregnated with resin, the shape being forced around a plaster mold or manded. Completed form is baked, under pressure, so as even to cure the plastic.

Because of the variety of intricate shapes which can be

made in this manner, designers are able to plan their ducts so as to relieve for other purposes some of the space usually required for ducting. This gives greater latitude in design and stress to increase the efficiency of installations.

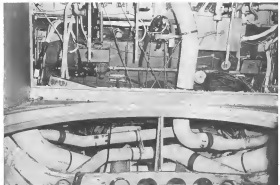
Boeing claims that the strength of these ducts is such that a 100 lb. man can step on them without damaging them. Principal stages in the fabrication of the plastic ducts are shown in the accompanying photographs.



Widest looking duct known as the "octopus" is in entry the access chamber like a Statorator bearing system. Just one example of the intricate ducts possible with Fiberglas construction.

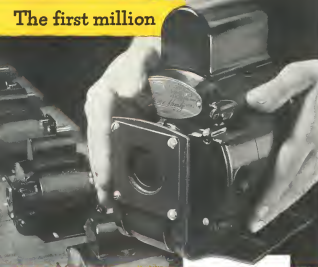


Installation of the ducts is simple, requiring no welding. The posterior installation shown in the picture was applied by hand and covered as just before duct was mounted. Variety of shapes available makes this type of installation simple.



Interior of the Statorator just forward of the forward bulkhead, shows a typical installation of the plastic ducts. In cramped quarters such as these the perforated ducts could adapt themselves to installation where variable time would be lost in installing usual type metal ducts. Another feature of the plastic duct is the fire resistant quality of the Fiberglas and its additional strength.

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Electric Motors



Self-Starting



Self-Starting Compressors



Electric Motors



Aircraft Motors



Aircraft Motors



Aircraft Motors

Las Vegas Airport

Las Vegas, N. M., soon has a new \$750,000 airport on 1948 as the result of an Interior Department action making 5,120 acres of federal land available, the first transfer to be made by the department under the Federal Airport Act of 1947. Final steps for turning the land over to officials of Clark County are scheduled for January. The airport has substantial employment of government lands for airport use upon various recommendations of CAA. The city's municipal airport was taken over by the Army Air Forces during the war under agreement with the city and resumed air use. After the war the Air Force decided to evacuate the Las Vegas gas were school on a permanent basis and commercial aviation was based from the field. The city has moved \$750,000 through a bond issue for development of the new port.

New Copier Group

Aviation committee of the Oakland (Calif.) Chamber of Commerce has appointed Marcell Baez, chairman of a new helicopter subcommittee to promote rotary wing and piston service in the Oakland Bay area. The committee includes Fred McCormick, Herold Auer, Walt Volkmann and William White. It will coordinate legislative measures to a possible helicopter piston service and submit recommendations for clearing the legal path to such service.

New Seaplane Base

J. B. Loane, president of Aero Tool Works, Ltd., Hamilton, Ont., Canada, has purchased land for construction of a six seaplane moor. A seaplane base will be set up on Geneva Lake and seaplane base, situated for a maximum of 15 seaplanes. Costs will be offset flying flying traps into north end Ontario and in the winter the planes will be available for flying guests in the east and winter visitors.

CAP Radio Net

A high frequency radio network linking Civil Air Patrol squadrons of North Dakota and southwestern Minnesota, will be an operation in 1949. Captain John Heintz, wing communications officer, reported that two transmitter and receiving stations, at Fargo and Thief River Falls, Minnesota, probably will be in operation in a week or two. Other equipment will be available soon to additional squadrons and by the end of next year every squadron—16 in the two states—is expected to be equipped.

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Wisconsin Aeronautics Meeting Set Next Month

Second annual Wisconsin State Aeronautics conference will be held at the Phibco Hotel in Milwaukee, February 25 to 28, according to E. K. Jordan, executive secretary of the Wisconsin Aeronautics Commission.

Col. Lester J. Matfield, currently appointed to become director of the commission on February 1, will be chairman of the meeting, which is sponsored jointly by the Commission, the League of Wisconsin Municipalities, the Wisconsin Branch Association and the Wisconsin Chapter of Commerce.

While schedules are still incomplete, national aviation officials are expected to speak on state and federal airport programs, airport construction, aviation and inland operations, Jordan said.

New Communique

General MacLean of Lincoln, has quoted Edwin P. Clark, president of Chicago's business radio, to the Illinois Aeronautics Commission to succeed the late John J. Lough of Chicago. Other members of the commission are Charles S. Lybrand of Nashville, chairman and Bob Green, D. of New York.

New Rental Service

Trans-Airco, Ltd., Toronto has started "Jet-Gasoline" rental-plane service at the Midway Airport, Toronto. Company uses Taylorcraft, Stearman, Vought, Beechcraft Bonanza and Cessna C-441. Rental on its fleet is \$100 per day.

Sioux Falls Gets Big Air Force Surplus Base

An estimated \$2,250,000 worth of buildings, equipment and supplies, most of the remaining South Dakota South Dakota, are being turned back to the air. In the federal government. The air base covers about 1,900 acres and contains Air National Guard's first in training thousands of recruits. Also valuable, because half of the base will be turned into a residential community and recreation area. About 100 buildings, 20 warehouses, 14,000 feet of railroad track and the electrical distribution system are being sold, and an estimated \$100,000 will be sold. The city-owned property and equipment in the northern half of the community airport itself is valued at about \$1,000,000.

BRIEFING FOR DEALERS & DISTRIBUTORS

SWIFT FOR WATSON—Forest Watson, Thomas, Okla., president of the National Flying Farmers Association, recently took delivery of a two-place Swift 125 plane at the Evans Engineering & Manufacturing Co., Dallas. Watson's use of the low-wing, retractable gear plane will be matched with almost by other flying farmers, who generally speaking have been flying from the type of plane in favor of the high-wing, strut-braced low-wing type, as better adapted for short fields and rugged terrain. The higher speed of the Swift, and other retractable gear personal planes is attractive to all pilots, and since the price of the Swift two-place is quite competitive with other fixed gear two-places, it may now add a new recruit to the list and much more, if Watson, a conservative pilot, accepts good experience.

GOOD OPERATION AWARDS—National Aeronautics Association's 1947 airport safety campaign concluded with awards of certificates of good operating procedure to 113 airports in 11 states, with Pennsylvania having 35 awards, Nebraska 36 and Connecticut 17, as the leaders. NAA has returned training sheets of all airports to the quality under the standards set, asking them to make the necessary changes in their operation and to re-submit their applications for certificates.

BUSKY FOR SALE—The Canadian firm, Fairchild Aircraft, Ltd., Longport, Ont., is negotiating with Natick Bell Aircraft Ltd., Sault Ste. Marie, Ont., to take over and tooling of the Fairchild Busky, both new single-engine and two-engine planes for possible future production. The Buskybird concept one of Canada's oldest aviation companies has announced it is going out of business. The Busky was developed as a postwar type for the bush lands of the Northwest, and the prototype was built, but it was not produced in quantity.

LOW FLYING ENFORCEMENT—CAA secretary of activities to study airplane noise and "make the airplane a good neighbor" indicates a growing policy of "cracking down" on low and reckless flying both by state and federal aviation officials, and with some assistance by local law enforcement officials. CAA's first report with headquarters in New York City reports that "so-called" quiet from 700 violation cases against pilots for low or reckless flying or both, in the last five months. In November alone, CAA reports 24 cases (Atlanta handled 24 violation reports on low flying and buzzing of houses, three of which resulted in fines with citations in one case). The cooperation between federal, state and local enforcement of regulations against reckless flying may be further strengthened if action is forthcoming on the recent recommendation of the National Association of State Aviation Officials that the Civil Aeronautics Act be amended to authorize state courts to suspend or revoke federal aircraft's certificates with cause after due process of law.

NEW DEALERS GROUP—Independent Aeronautical Dealers Association, Inc., New York, has been admitted as a membership organization without capital stock. In five days, the formation of the organization is set to be announced. High standards of members exchanging business information, establishing a central credit bureau, etc. Directors named are: Edsel C. Cline, and Chester Cline, New York; Joseph Altman, Springfield, N.Y.; Sofia Holstad, Chicago; and Louis H. Pomeroy, 2500 Rosslyn, N.Y. who is also attorney for incorporation.

THIRD CUTTING—Airplane dealers who use under and unbalanced criticism of competitive planes in an effort to create sales for their own merchandise as a means, it will be those of their companies. Joseph G. Gentry, secretary-manager of the Personal Aircraft Council, recently advised the California Aviation Fairs Association. Gentry received a list of personnel joining airport service. Details of companies representing a wide variety of interests in including better general transportation, good facilities, airports close to community centers, office and parking area, plans, retractable clean restrooms, good food and dining facilities, full time repair service, standardized field signs, signs and better road indicators, more hangars and better airport parking.

CONYAIR CAR REPORT—West Coast airports are that some airline interests are, surprisingly, Consolidated-Veteran with respect to take over the entire airline, mobile equipment project of the company should decide to do this it is too experimental and long time a project for present investment. Another report is that Conyair can set up a subsidiary development corporation just to handle future development of the flying units.

—ALEXANDER MASTURELY

CAA Grants Funds For Airport Work

CAA has announced that up to Dec. 1st grant offers to quantities of 127 local airport projects totaling \$13,960,000 have been made under the federal aid airport program. The figures show 34 grants over \$100,000, 1 airport totaling \$1,794,000, 37 grants for class 2 airports, totaling \$2,660,481, 51 grants for class 3 airports, totaling \$7,356,479 and 5 grants for class 4 and class 5 airports, totaling \$1,700,815.

Analysis of the report shows that approximately 50,000,000 of the grants were to class 1 and larger airports, while class 1 and 2 airports, although receiving larger number of grants, received in total less than about one-fourth of the total grant.

CAA Criticism—CAA has been accused of squandering money by data and local officials for failure to adequately prepare to provide for the smaller airports. A 1947 Airport Construction program authorized last Jan. 11 by Administration F. P. Willard called for distribution of approximately \$800 million. Comparison of this figure with the accomplishment reported as of Dec. 15, shows that less than one-fourth of the \$800 million received grants in various states and work.

However, in August the 1947 and 1948 programs were merged into a combined program calling for federal allocation of \$4,516,515 to 400 airports, about \$2,500,000 in the services and \$1,724,515 is a fund for special grants at the administrative discretion.

Stock Stripping—A recent Washington conference between CAA airport officials and representatives of the National Association of State Aviation officials was called on a claim to obtain some simplification of the federal aid type, legal and engineering, which has been hampering the federal aid grant program, to obtain federal grants. Report on whether simplification was achieved at that conference is expected shortly.

Northwest Changes Hands

Northwest Aviation Sales, Inc. Portland (Ore.), Portland, Astoria, has been named Oregon distributor for Evans Engineering & Manufacturing Co.'s two place Swift 125 personal plane. Northwest is now transferring management and operation of Northwest to Lewis, 1000 West 1st Street, Chicago, Ill. and W. H. Winters, 1000 E. Johnson, former president, plan on continued vacation after which he will represent the organization in a sales position. The new operators plan to expand both the size and service of the operation.

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NWA Shows Interest In BOAC Connection

Look at Hong Kong hinted in recent Far Eastern trip by NWA president.

TOKYO—Link up of Northwest Airlines and British Overseas Airways at Hong Kong is very much in the wind following NWA President Carl Hunter's visit to Hong Kong, just what they want. Hunter's idea in Hong Kong closed the way far as early arrangement.

Other Northwest developments which will result from Hunter's trip to the Far East.

(1) Early survey of shuttle service from Tokyo to Seoul, Korea, to Peking, China. Already operating to Seoul, NWA hopes to tap a huge tourist mar-

ket using cooperation permitted in Japan who work in an flying.

(2) Reduction of Northwest's fare from Manila to San Francisco. Pass only its passengers bought a ticket to Seattle, then had to buy an additional ticket for the Seattle-San Francisco leg. New fare would be the same as other carriers and can be justified by shorter mileage.

Fare cut of Boeing Transportation on the Pacific route is not meant. Air line officials admitted to Aviation Week that the Boeing move will not end until costs have been reduced to passenger standards.

While the big planes provide quality, they earn a lot of money. There must be some reason for this, now accounted to put three Southwest flights per week across the Pacific.

One Southwest route, Seattle-Norfolk, transatlantic route, had of about 40 passengers and 5,000 lb. of mail and express. The airline not only wants to maintain its present three weekly service but is anxious to increase the schedule to five weekly.

It is a good bet that Northwest will not investigate regular Southwest service until larger business loads are secured. Complete opening of Japan to foreign travel, with an anticipated large tourist business, probably will put the idea, which the Boeing may work on the run.

Italy Ponders Merger For Internal Airways

MILAN—The Italian government is considering a merger of many of the country's internal airlines, including Italian Air Lines, Tevere, Alcona, Transatlantico and San

Indice air transport lines, meanwhile, are showing passengers currently to high value packages over profitable goods. Part, watches and linen textiles are supplying fresh fruits and vegetables in season in the centers are held. Available for the last of profitable goods through delays caused by bad flying weather.

Two recent developments in Italian aviation are KLM, Royal Dutch Airlines, surfaced in the regular weekly service between Rome, Catanzaro, Rio de Janeiro, Montevideo and Buenos Aires, and negotiations opened between the Italian and Russian governments to develop Campana de Manzanera to include Belgrade, Sofia and Rostov-on its regular Moscow route.

Fares Increase in India To Offset Rising Costs

NEW DELHI—A 10 percent increase in passenger fares has been announced by the Air Transport Licensing Board on the plea of Indian airlines that operating costs have been increasing steadily.

The increase, however, applies only to those airlines who have been less than 80 cents a mile, and that figure is a ceiling for all airlines.

Recent losses for the airlines in 1966, according to industry figures, is the sharply increasing shortage of trained personnel in the country which has resulted in a ballooning of wages far beyond what they were a year ago. The situation is the result of many aviation programs of expansion.

Tenders Invited

JOHANNESBURG—The Union of South Africa is inviting tenders for operation of a new Amsterdam route, the first of several such routes slated for private operation.

Airport Negotiations Under Way for Turbigo

MILAN—Swedish air interests are negotiating with the Italian government for the formation of a stock company to operate the Turbigo (Snores) airport as a part of their transcontinental drive. The Swedes will subscribe 51 percent of the stock in the Italian government's 49 percent. The latter has made an allocation of 100 million lire to rent the airport.

IEA is reported to have offered the Consorzio Aeronautico del Porto di Genova financial support for the construction of an airport at Genoa, west of the harbor.

Panair do Brasil Ownership Shifts

RIO DE JANEIRO—Panair do Brasil now is 52 percent owned by Borealis and 48 percent by Pan American Airways. Transfer of some 40,000 shares here last month leaving the balance may now be partly owned by Borealis. Pan American probably still will have what amounts to control, even if it would be difficult to get unanimous action from the hundreds of Brazilian shareholders.

Panair do Brasil led all Brazilian airlines in 1966 in duration and hours flown and passengers carried, followed closely by Cruzeiro do Sul, which was top in baggage and mail transported.

Australian Policy Set On Dollar Area Travel

No immediate reduction in air tickets between Australia and the U. S. is in prospect as a result of the Gouzenko-Smith government's ban on travel and private travel to dollar areas. In the future, travel to the U. S. will be restricted to business trips which are reported in restricted numbers. British Commonwealth Pacific Airways plans leaving the U. S. for Australia are booked solid for some time to come, although northbound bookings are very high.

Trans-Australia Losses

MELBOURNE—Trans-Australia Airlines incurred a loss of \$935,927 (about \$2,213,000) in the year ended June 30, according to the long-awaited first state annual report of operations as a government-owned airline. No allowance is made in the balance sheet for the interest on treasury advances in amount of \$2,700,000.

TAA suggests that the debt balance on its operations is a subject of establishment costs rather than of operating loss.

Paris Letter:

Only Field Recalls ATC Days

PARIS—If you fly on those days to Orly Field, Paris' international airport, you're not apt to notice much change from the days when Air Transport Command was the show after having built up a secondary airport to a major world base. But if you look only to the north side of the field, where Air France checks and repairs its planes, you'll find a whole new center at Orly.

Operations at the field itself are carried on, under the French administration which took over about a year ago, in the same western offices there as by the AAF. The control tower uses ex-AAF equipment and even, with a touch of French, keeps its log in English. Remaining ATC activities are relegated to a small corner of the control tower.

A new 9,700 sq. ft. wooden passenger shed has been erected by the French and working facilities are now being made to a second passenger building in concrete, with 15,000 sq. ft. of space and a restaurant. But both of these are considered temporary.

"We have a genuine long-term plan," points out Jean Druet, an official concerned with the field. "It includes 30 runways, a pipeline, changing the route of the main highway which runs beside the field. It would cost \$300 million."

The plan encompasses in the dream world for two reasons. "You can imagine the first reason," continues M. Druet. "Our government just hasn't got sort of money for airports in general. In the second place, no transport ever comes in as much a hard state that it is hard to tell what requirements will be ten years hence. Besides, Orly's present terminal, 40 to 60 arrivals or departures daily—almost all transatlantic—is not excessive."

At present the field has two stops—overseas E.W. stop set up for CCA, and a 14 mile N.B. stop set up for SCS-51. An uncompleted, second E.W. stop will be finished out to 14-mile length this spring, and plans call for construction of a 13.5 mile second N.B. runway in the next couple of years.

Air France has shown a slight of energy in the field's western sector, where its Concord, DC 4 and

other large transports are checked, overhauled and parts repaired. Starting late in 1966 five maintenance hangars of 26,000 sq. ft. each were transferred from Orly Field and installed here. Eight hundred men are employed already in this activity, with such modern equipment available as a rolling test bank for flight instruments.

At the same time, a three-story fuselage school building was taken over and turned into a plant for parts repair with an output of 3,200 in. in each, employing 490 men. These shops test and repair aircraft hydraulic, vacuum, gas, oil, drive induction, and other systems and landing gear, copy and assemble drawings of parts for replacement, with a dozen modern machine tools, including lathe, mill, planer, lathe and blower, test and repair electric motors and radio, test and repair flight instruments involving automatic pilots.

Next, all the equipment employed in American (and most of the parts required are also), with much of the equipment coming from surplus. An effort is being made to build a stock on order of 3,000 different parts and accessories which have been or may be called for. So far the stock is by no means complete, though the great bulk of them has been ordered.

Air France expects to maintain all its repair activities at the Orly. To this end new new hangars are going up, with total floor space of 185,000 sq. ft. Four are completed. The first will start shipping airplanes in January, the next four will be shipping engines by March (all engine repairs are now shipped over to the main shop at Saint-Didier), and the remaining four should house some of the other shops by late spring. Later special motor test units and two more maintenance hangars will be built.

While their construction and repair set-up is available in such lines in TWA on an exchange basis, there is not generally much call on it by operators other than Air France. But at a steady, and especially after the new services get fully shakedown and experienced, it should be of real value to all long-distance lines touching France.

—Michael Mink



AVIATION WEEK'S Tokyo Correspondent, Bill Jump, Orléans, talks with Carl Hunter, president of Northwest Airlines, who is in the city for a recent trip to Tokyo. Mr. Hunter, with his family, is in the city for a recent trip to Tokyo. Mr. Hunter, with his family, is in the city for a recent trip to Tokyo.

and Steward Ben King, vice president for the Group at that time weren't any more on the plane for their morning except as crew members. I have a suspicion that Carl is making for pretty good work when he comes from a five-week business survey trip to the Far East.

If they are all so good at their jobs as Mr. Hunter, it is a wonder our crew

The XS-1 Story—Pro and Con

Below are some interesting statements by the press on Avrocan Wehr's story Dec. 12, repeating that the Bell XS-1 had flown faster than the speed of sound. In addition the extremely noisy sound noted when Joseph and Stewart (Jan. 4) said it is difficult to exaggerate the significance of this accomplishment.

TIME MAGAZINE (JAN. 5):

PAPER TRAIL STORY—The only known incident to report in the air has been reported. That was the U. S. Air Force was really to announce that a pilot airplane had broken through the true sound barrier and that these Americans had flown faster than the speed of sound (746 miles an hour), faster than any man had ever flown before.

It was the longest stay in unexcited development since Orville Wright first flew at Kitty Hawk, N. C., 44 years ago. But the Air Force's policy of achievement was defied by the fact that it had not succeeded in producing the secret of true supersonic design which had slipped away the response speed year. The Air Force could not tell how quiet the speeds which had been achieved in the speed testing flight.

The Air Force had in official story after Avrocan Wehr, a fortnight ago, published an account of the XS-1's successful flight which the Air Force had hoped to keep secret. The engineers severely point out that the other nations already had pictures showing the XS-1's straight wing design, the Air Force had actually released them 12 months ago. Much U. S. aerospace activity—and presumably that of other nations—had been possible on a crash-bang design. The effect of publication was to tell all other nations and political enemies. Forget the supersonic design, at all now, at least, the straight wing is it.

AMERICAN AVIATION DAILY (JAN. 2):

ALL FACES REVEALED—Avrocan Wehr Magazine—in its editorialized attack the Air Force has released an aviation magazine and announced late Wednesday that the question of whether military secrecy has been violated has been turned over to the Department of Justice.

The article in question concerns the supersonic flight of the experimental rocket plane, the XS-1, which received considerable press attention. It is understood that Secretary of Defense Paul H. Nitze, who also is in command of the Air Force, has decided that the XS-1's flight was not a secret.

Early Wednesday Secretary of the Air Force, Douglas MacArthur, issued a press conference to be held the morning. Late Wednesday the Air Force announced that the XS-1's flight was not a secret. It was then held off and that Mr. MacArthur had decided "to discuss aviation matters in connection with the XS-1."

Secretary MacArthur had been ordered to keep the XS-1's flight in high light. He had the newspaper and magazine we have just mentioned could quote some time ago.

EDITORIAL, WASHINGTON EVENING STAR (JAN. 5):

MILITARY SECURITY is a Fair Science—Opinion—scientific research during the past few produced aviation weapons and devices that will change the nature of future warfare. Such significant research is something in progress. It is vital to national security.

The proper protection of that sort of military scientific activity in personnel has become a complicated problem. As a first principle, with a few years, we are experts of security. We are reluctant to tell anybody with the technology with the people and equipment in the hands of the military. First intelligence of knowledge, moreover, it is a small possibility of obtaining from some foreign countries and disclosure.

How are we going to retain both—the military advantage of secrecy in development of new weapons and the freedom of information, freedom of the press and freedom from national ownership which are so important in the protection of all other freedoms? If we want to keep both in the protection of national information, we must be able to keep in one direction as much as we might gain in the other. Yet we are aware of the press and freedom of information, which then is a great good for the responsibilities which accompany them, one is dissatisfied to see the military security on which these freedoms depend.

It is about four months, though perhaps somewhat in draft, illustrates the nature of the problem. A magazine, Avrocan Wehr, reported development of a supersonic airplane which military officials reported as highly secret. The Department of Justice is looking into whether it is possible to do so under existing law in the magazine. But in certain circumstances, whether or not they were present in this case, a publication of this sort could be of great advantage to the national interest.

There is no way or quick solution of the dilemma thus presented. But it would seem that at least two steps should be considered. One is to improve upon the conditions of communication media in the country for the danger of certain more treatment of new developments in certain fields. The other is to see if the government, a responsible source of aviation information, available to press and radio, concerning subjects whose disclosure would be prejudicial to the military defense. The lack of any such agency now, together with the contradictory advice which sometimes is given by various within the government and the isolation of such sensitive data, when to talk out of him, must certainly. The nature of military activity during the war was to a large extent due to the conditions of military activity on the Office of Government and the war with which it is closely connected.

The overall of such such method in connection with the protection of reasonable military security would provide sound solutions under any conditions and some might opportunity. But in meeting a responsibility in the world today, such machinery might be helpful to the press in discharge of its responsibility to deal with government. If the press lacks responsibility, its freedom is in jeopardy under any conditions.

EDITORIAL, WASHINGTON POST (JAN. 5):

SECURITY—It is desirable whether the ideas of Avrocan Wehr persons actually exposed national secrets in publishing the story that the Air Force captured rocket plane has been faster than the speed of sound. If, in the extreme's opinion, confirmed, the Air Force has been preparing a release of its own on that accomplishment in launching the supersonic test, then all the subsequent loss is meaningless. Forewarning of the leakage of vital information is of course a matter of the utmost importance. But this issue in the present case may have been left to the only remedy, in an effort to produce the magazine. However, the fact, the magazine demonstrates the need for a reliable military security policy in national defense. That there is no such policy now is well known.

It cannot be denied that some information has been published that may be harmful to our language security. Much of this information has been of a technical nature, such as was contained in the XS-1 report on atomic energy. As such they cannot be said to have been doing the damage caused by the XS-1. It is difficult to be adequate, thus monthly we must have some military activity which is not display in a showman. A man in which important information is being merely even of a confidential security policy is of course dangerous. At the same time we cannot allow to go to the extreme extreme of a completely blanket approach to which the label "National Security" is applied to every conceivable advance.

The problem is one for Secretary Forrestal. Part of the difficulty lies among his subordinates in the various services. There is still a tendency, no doubt a lingering from previous days, for each service to strive to protect the others in "accidental" disclosures. A little less Hollywood joint activity and a little more secret on only would be helpful. Secondly, there must be recognition that the American people are entitled to a reliable level but a serious need to release the requirements of national security. Consequently, a last step in making cooperation of the press is to do so on what the requirements are.

Most that that, there must be an effort to understand the particular problems of the press—their interests, for example, the reaction when the results of a superior's machine are forced by "security" only to have them almost immediately elsewhere. What is needed above all else is an agency to which the press can turn its security questions, as agency upon 24 hours a day. Not only must this agency have authority to lay down a security policy with respect to certain publications, but also must be able to answer that its decisions will be respected within the services as well. The prime objective of this office is that it have the confidence of the press with whom it is dealing. There will be no difficulty in making representation of the press if the press is convinced that security policy is a matter of intelligent planning and not a haphazard after thought to when and where.

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